

## Effect of Instructional Guidelines on Knowledge and Self-Care Practices among Pregnant Women Suffering from Leg Cramps

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### Abstract

**Background:** Leg cramps during pregnancy are a common discomfort characterized by involuntary, painful contractions of muscle groups that usually occur in small muscles of the foot but can affect different parts of the leg. **Aim:** The study aimed to evaluate effect of instructional guidelines on knowledge and self-care practices among pregnant women suffering from leg cramps. **Design:** Quasi-experimental design (pre – posttest "one group") was utilized **Setting:** The study was conducted at Obstetrics and Gynecological out -patient clinic in Benha University hospital. **Sample:** A purposive sample was used; it includes all pregnant women with leg cramps admitted to previous setting for six months. **Tools:** A structured-interviewing questionnaire, maternal knowledge questionnaire and Maternal self-report about self-care practices regarding leg cramps questionnaire. **Results:** There was a highly statistical significant difference between the results of post-test compared to pre-test about knowledge and self-care practices regarding leg cramps. **Conclusion:** The implementation of instructional guidelines was effective in improving pregnant women's knowledge and self-care practices regarding leg cramps. **Recommendation:** Practice modification to prevent leg cramps should be recommended by Obstetricians and obstetric nurses to be first trial by pregnant women who have leg cramps. Also, Booklets and brochures containing sufficient knowledge about leg cramps during pregnancy and its management should be printed and kept in antenatal clinics and maternity hospitals and given to all pregnant women.

**Key words:** Instructional Guidelines, Leg cramps, Pregnant Women, Self-Care Practices.

### Introduction

Pregnancy and childbirth are two major events in a woman's life. Pregnancy is mostly viewed from physiological perspectives because of many physical changes that occur throughout pregnancy (Kaur et al., 2021). In pregnancy, many physiological, anatomical, biochemical and immunological changes and adaptations happen within the mother, which lead to minor discomforts. The wellbeing of antenatal mothers is affected by these minor ailments (Sharma et al., 2021).

During pregnancy, the hormonal and anatomical changes which occur affect the

musculoskeletal system in women. These changes may cause various musculoskeletal problems that may alter the course of the preexisting conditions or predispose to injury. A majority of pregnant women experience some degree of musculoskeletal pain during pregnancy (Mohamed et al., 2021). The common musculoskeletal disorders (MSDs) during pregnancy include leg cramps, low back pain (LBP), carpal tunnel syndrome (CTS), pelvic girdle pain (PGP) and joint pains. MSDs could be influenced by some factors such as level of activity, gestational

age, cultural influences, and environmental factors (**Onyemaechi et al., 2021**).

Leg cramps (LCS) is a common musculoskeletal condition that is characterized by involuntary painful contractions of the leg muscles including the calf, or foot muscles that occur suddenly at night and maybe episodic. The calves are most commonly involved and attacks are more frequent at night and in the second and third trimester. About 30%50% of pregnant women experience leg cramps twice a week during the second and third trimester (**Liu, et al., 2021**).

The etiology of leg cramps is not completely clarified. It could be an alteration of neuromuscular function, excessive weight gain, peripheral nerve compressions, insufficient blood flow to the muscles, and increased work by the muscles of the lower limbs. It could increase the glomerular filtration and the need for the fetus to receive minerals, compared to the muscular need of the mother's legs, with a little calcium magnesium and potassium can cause leg cramps, or that getting too much phosphorus have the same effect because it can keeping from absorption of enough calcium (**Bordoni, et al., 2021**).

Concerning negative effect of leg cramps, leg muscle cramps (LMCs) were associated with sleep latency and day time dysfunction. Also, leg cramps may cause severe pain and sleep disturbance. The sleep disturbance reduces the quality of life, job performance and family relationships, hinders performance of daily activities and may lengthen the duration of pregnancy (**Mansouri et al., 2019**).

There are many tips to prevent or reduce the occurrence of leg cramps such as avoid standing or sitting with the legs crossed for long periods of time, trying to stretch the calf

muscles regularly during the day and several times before going to bed, rotating the ankles and wiggle the toes whenever the sit down, lying down on the left side to improve circulation to and from the legs, keeping the sheets and blankets loose at the foot of the bed to prevent toes and feet from pointing downwards during sleep, trying a warm bath before bed to relax the muscles, drinking water regularly to stay hydrated during the day, taking a balanced diet, calcium and magnesium supplements and The same goes for vitamins C and D (**Watson, 2021**).

Additionally, treatment of cramp syndromes involves non drug therapies such as active stretching, massage, heat and cold therapy, relaxation, dorsiflexion of the foot. Symptomatic treatment can reduce abnormal muscle contractions or the discomfort produced by the contractions. The drug therapy involves Calcium salts, magnesium salts, sodium salts, vitamins (vitamin D, vitamin E) and related drugs can be effective in treating leg muscle cramps (**Wang and Lopate, 2021**).

Nurse can play a major and vital role in providing anticipatory guidance to foster the women's responsibility for self-care practices, helping to clarify misconceptions and correct any misinformation (**Hassan et al., 2020**). Information to pregnant woman does not require equipment or machinery but an efficient educator maternity nurses and the willingness to listen and follow instructions and their awareness makes pregnancy safer to have safe mother and childbirth. So, maternity nurses have a very important role to play in triaging patients, educating patients and managing minor conditions, therefore preventing many hospital admissions. Also, all antenatal mothers should possess adequate knowledge on minor ailments and its home

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management in order to prevent the complication (El-Khawaga et al., 2019).

### **Significant of the study:**

Leg cramps are one of the common symptoms during pregnancy. About 30%–50% of pregnant women experience leg cramps especially in the second and third trimester. Almost two-thirds of these women experience leg cramps twice per week and can occur at any time, particularly at night. In most cases, leg cramps only last for seconds, but in severe cases, leg cramps in pregnancy will last for minutes with severe pain (Liu et al., 2021).

Leg cramps may cause severe pain and sleep disturbance, hinder performance of daily activities and may lengthen the duration of pregnancy and the type of child birth (Mohamad et al., 2020). If maternal's sleep quality is disturbed, LCs may co-exist to cause some impact on pregnancy outcomes such as increased risks of pregnancy induced hypertension, pre-eclampsia, gestational diabetes, prolonged labour, increased caesarean rates and prematurity. LCs is severe enough to cause anxiety and depression, leading to increased cytokines levels. As a result, this causes an increased risk of early labor with possible fetal asphyxia and postpartum hemorrhage (Peter et al., 2018

The importance of knowledge about leg cramps and its self-care management is paramount because knowledge is a potent tool. Therefore, it is mandatory for the mother to gain the knowledge to equip herself to cope, adapt and tolerate with the leg cramps and to be more confident in herself and her pregnancy.

### **Aim of the study:**

The present study aimed to evaluate effect of instructional guidelines on knowledge and

self-care practices among pregnant women suffering from leg cramps.

### **Research Hypotheses:**

**H1:** Pregnant women would have improved knowledge regarding leg cramps after implementation of instructional guidelines than before.

**H2:** Pregnant women would have satisfactory level of self-care practices regarding leg cramps after implementation of instructional guidelines than before.

### **Subjects and Method**

#### **Research design:**

A quasi-experimental study design (pre – posttest "one group") was utilized to fulfill the aim of this study.

#### **Study setting:**

The study was conducted at Obstetrics and Gynecological out-patient clinic at Benha University hospital in Benha city, Egypt.

#### **Sample type:**

A Purposive sample was used.

#### **Sample size:**

The total sample was all pregnant women with leg cramps admitted to previous setting for six months according to the following inclusion criteria:

- Women who had leg cramps during pregnancy.
- Pregnant women in second trimester (13-28).
- Free from any medical or obstetrics complications.
- Free from any psychological disease.

total sample were collected six months were (100) pregnant women.

#### **Tools of data collection:**

Three tools were used for data collection:

**Tool I: A structured interviewing questionnaire** :which included three parts

**First part: General characteristics** (5 items) such as (age, level of education, residence and

occupation, source of information about leg cramps during pregnancy).

**Second part: Obstetrical history** (4 items) such as (gestational age, number of gravidity, number of parity and number of ante care visits during the current pregnancy).

**Third part:**

- **Present leg cramps history** (3 items) such as (most common sites of leg cramps, most common time of occurrence of leg cramps, factors aggravate intensity of leg cramp).
- **Leg cramps pain characteristics** (2 items) such as (Intensity of leg cramp pain, duration of leg cramp pain).

**Tool II: Maternal knowledge questionnaire:**

It was adapted from (Ramadan et al., 2019; Anthrayose, 2016) under guidance of supervisors and translated into Arabic language. It was used to assess pregnant women's knowledge regarding leg cramps. It consisted of multiple-choice question which included (16 items) such as (definition of leg cramps, symptoms, causes, complication, preventive measures, methods of pain relief, management of, importance of calcium for a pregnant woman calcium-rich foods, foods Rich in Vitamin D, factors affecting calcium absorption importance of exercising for, types of exercises that reduce leg cramps, time required to exercise, importance of exposure to the sun and Best times during which one must be exposed to the sun).

**Scoring system of knowledge:**

All knowledge variables weighted according to items included in each question. Each item was given a score (2) when the answer was correct answer, a score (1) when the answer was incorrect answer or don't know. The total score was calculated by summation of the scores of its items. Total

knowledge score was classified as the following:

- Good: (> 75 % correct answer).
- Average: ( $60 \leq 75$  % correct answer).
- Poor: (< 60 % correct answer).

**Tool III: Maternal self-report about self-care practices regarding leg cramps questionnaire:**

It was adapted from (Ramadan et al., 2019; Anthrayose 2016) to assess self-care practices of pregnant women regarding leg cramps. It consisted from five domains:

- The first domain: Nutritional diet (10 items) such as (eating foods rich in calcium, such as eggs and milk, eating fruits and vegetables and foods rich in vitamins regularly, eating protein daily such as meat, eggs and fish, eating foods rich in potassium, such as beans and potatoes, eating foods rich in iron such as liver and red meat, consuming adequate amounts of water and fluids daily reducing the intake of table salt, reducing spicy foods that contain many spices, drinking fresh juices daily and Taking nutritional supplement medications (vitamins, calcium, iron)).
- The second domain: Rest and sleep (2 items) such as (Getting enough sleep (6-8) hours at night and Taking adequate rest during the day).
- The third domain: Follow up on pregnancy and lifestyle (2 items) such as (periodic follow-up with the doctor during pregnancy and doing simple exercises such as walking during pregnancy).
- The fourth domain: Triggers for leg cramps (4 items) such as (avoid standing for long periods, wear non-compression stockings for the feet, wearing comfortable shoes and avoiding stress and nervousness).
- The fifth domain: Compliance with medication (2 items) such as (taking the

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prescribed medicine on time and avoid taking medicine without consulting a doctor).

### **Scoring system of self-care practices:**

The score of practices ranged from (0) to (2), each statement scores as following: (2) if always done, (1) if sometimes done and (0) if never done. Total practices score was classified into three levels:

- Highly Satisfactory >80%-100%.
- Satisfactory level: ≥60%-80%.
- Unsatisfactory level: < 60 %.

### **Tool validity:**

The validity of questionnaire was reviewed by 3 jury experts in the field of Obstetrics and Gynecological Nursing to ascertain clarity, relevance, comprehensiveness and applicability of tools. Modifications were done such as adding, rephrasing and omitting some questions.

### **Tool reliability:**

Reliability of tools was tested by using Cronbach's alpha coefficient test, which revealed that the tools consisted of relatively homogenous items as showed by the moderate to high reliability of each tool. The internal consistency of knowledge of was equal (0.89). The internal consistency of self-care practices of was equal (0.91).

### **Ethical considerations:**

Ethical aspects were considered before starting the study as the following:

- The study approval was obtained from scientific research ethical committee of the faculty of nursing at Benha University for fulfillment of the study.
- An official permission from the selected study settings was obtained for the fulfillment of the study.
- Before applying the tools, the researcher explained the aim and importance of the study to gain women's confidence and trust.

- Oral consent was taken by the researcher from women to participate in the study and confidentiality were assured.
- The study hadn't any physical, social or psychological risks on the women.
- All tools of data collection were burned after statistically analysis to promote confidentiality of the participating women.
- The study tools were ensured that the study didn't cause any harm for any women during data collection. Also didn't include any immoral statements and respect human rights.
- The women were free to withdraw from study at any time.

### **Pilot study:**

The pilot study was conducted on 10% from total period six months approximately (3 weeks) to check the simplicity, clarity, applicability and feasibility of the developed tools. Modifications were done according to the pilot results as paraphrasing some questions and pilot sample was excluded from the study.

### **Fieldwork:**

The study was carried out at the beginning of January 2022 to the end of July 2022. The researcher was visited the previously mentioned setting two days/ week (Saturday and Tuesday) from 9.00 am. to 12.00 pm. The researcher was conducted the study through five sequential phases: preparatory phase, interviewing and assessment phase, planning phase, implementation phase and evaluation phase

#### **Preparatory Phase:**

The preparatory phase was the first phase of the study; the researcher carried out through review of local and international related literature about the research problem. This helped the researcher to be acquaint with magnitude and seriousness of the problem,

and guided the researcher to prepare the require data collection tools. The tools jury was done. Finally pilot study was done to test tool appropriateness, comprehensiveness, clarity, importance and applicability.

**Interviewing and assessment phase:**

At the beginning of the interview the researcher greeted the woman, introduced herself to each pregnant woman include in the study, explained the purpose of the study, provided the woman with all information about the study and took oral consent to participate in the study. Data were collected by the researcher through interviewing the women using the following tools **tool I:** structured interviewing questionnaire, which include three parts; general characteristics, obstetric history and present leg cramp history & leg cramps pain characteristics; (required time for completion 20mintes) **tool II:** maternal knowledge questionnaire; (required time for completion 15mintes) **tool III:** Maternal self-report about self-care practices regarding leg cramps questionnaire (required time for completion 15mintes). Average time for the completion of each woman interview was around (45-50 minutes). A number of interviewee women /day were ranged from 2-3 women. The data which obtained during this phase constitute the baseline to evaluate the effect of instructional guidelines. This step was repeated for all pregnant women until the predetermined duration completed within total period six months.

**Planning phase:**

Based on results which obtained during assessment phase, the instructional guidelines regarding leg cramps was developed by the researcher in a form of printed brochure. The brochure was designed specifically for pregnant women with leg cramps, in simple Arabic language to suit their level of understanding and to satisfy the

studied pregnant women's deficit knowledge and self-care practices regarding leg cramps. Sessions number and its contents, different methods of teaching, and instructional media are determined. Objectives were constructed to be attained after completion of instructional guidelines. The general objective was: by the end of the instructional guidelines sessions, each woman will able to acquire essential knowledge and satisfactory level of self-care practices regarding leg cramps.

**Implementation phase:**

The researcher designed the instructional guidelines to enhance women's knowledge and change their self -care practices positively regarding leg cramps. This intervention implemented through two scheduled sessions. It was conducted at outpatient clinic at Benha University hospital immediately after completion of the assessment phase. Each session took about 30-45 minutes according to their achievement and feedback. At the beginning of the first session pregnant women oriented with the intervention contents. The subsequent session started by a feedback about the previous session and the objectives of the new session, simple Arabic language was used to suit women's level of understanding. At the end of each session, five minutes devoted to permit women to ask questions to clarify the session contents and to correct any misunderstanding. Each woman informed about the time of the next sessions.

Different methods of teaching were used such as lectures, group discussions, critical thinking and problem solving and brainstorming. Instructional media include the brochure which constructed by the researcher in a simple Arabic language after reviewing the related literatures distributed to all recruited women in the study from the first session to achieve its objectives. Moreover,

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the researcher used supportive tools that function as stimulus control to support desired changes include stickers and flyers that reinforce the concepts of the intervention and emphasizing the effects of instructional guidelines on women's knowledge and practices. The **first session** included (definition of leg cramps, incidence, symptoms, causes, risk factor and complication). The **second session** included effect of leg cramps on women's lifestyle, investigation and lifestyle modification such as: (dietary changes, fluid & nutrition, avoid triggers, rest, sleep follow up, compliance to medication, and activity). The detailed content of each session mentioned in the second session.

### **Evaluation phase:**

The effectiveness of the instructional guidelines was evaluated after implementation using the same format of tools which use during the assessment phase and the researcher evaluate women's knowledge and self-care practices 4 weeks post-intervention from the last session and during outpatient follow up or via telephone in case of late. Finally, the researcher compared pretest and posttest results of the study group to evaluate the effectiveness of the program implementation.

### **Statistical analysis:**

The data collected were organized, coded, computerized and analyzed by using The Statistical Package for Social Sciences (SPSS version 21). Then results were presented in suitable tables and figures. Descriptive statistics were applied (e.g., mean, standard deviation, frequency and percentages). Chi-square test and Pearson correlation coefficients were used. A significant level value was considered when  $p \leq 0.05$ . And a highly significant level value was considered when  $p < 0.001$ .

### **Results**

**Table (1):** Shows Socio-demographic characteristics of the studied sample. It was cleared that more than two-fifth (42.0%) of studied sample were in age group 20-30 years with a mean age of  $26.08 \pm 0.76$  years. As regards the residence, less than two-thirds (63.0%) of them lived in rural areas. Furthermore, less than three-quarters of them (73.0%) were housewives. Regarding the educational level, less than half (48.0%) of them had secondary education.

**Table (2):** Shows that the most common sites of leg cramps in studied sample were both leg with percentage (47.5%). At sleep was the most common time of leg cramp occurrence with percentage (59.0%). According to factors aggravate intensity of leg cramp, standing for long time was the common factor with percentage (68.0%).

**Table (3):** Shows that according to of leg cramps pain characteristics of the studied sample, the intensity of leg cramp pain is severe in more than half (54%) of them. Moreover, half (50%) of them suffered from leg cramps for period of times exceeds more than 15 minutes..

**Figure (1):** Displays that, (10.0%) and (68.0%) of studied sample had good knowledge regarding leg cramps at pre-intervention and 4 weeks post-intervention phases respectively. While, it was revealed that (70.0%) and (18.0%) of them had poor knowledge regarding leg cramps at pre-intervention and 4 weeks post-intervention phases respectively.

**Figure (2):** Displays that, (30.0%) and (71.0%) of studied sample had satisfactory level of self-care practices regarding leg cramps at pre-intervention and 4 weeks post-intervention phases respectively. While, it was revealed that (66.0%) and (17.0%) of them had unsatisfactory level of self-care

practices regarding leg cramps at pre- intervention and 4 weeks post-intervention phases respectively.

**Table (1): Distribution of the studied sample according to their general characteristics (n=100).**

| General characteristics     | No | %    |
|-----------------------------|----|------|
| <b>Age (years)</b>          |    |      |
| < 20                        | 25 | 25.0 |
| 20-30                       | 42 | 42.0 |
| > 30                        | 33 | 33.0 |
| <b>Mean ±SD =26.08±0.76</b> |    |      |
| <b>Residence</b>            |    |      |
| Rural                       | 63 | 63.0 |
| Urban                       | 37 | 37.0 |
| <b>Educational level</b>    |    |      |
| Illiterate                  | 4  | 4.0  |
| Basic education             | 11 | 11.0 |
| Secondary education         | 48 | 48.0 |
| High education              | 37 | 37.0 |
| <b>Occupation</b>           |    |      |
| Housewife                   | 73 | 73.0 |
| Employed                    | 27 | 27.0 |

**Table (2): Distribution of the studied sample according to their present leg cramps history (n=100).**

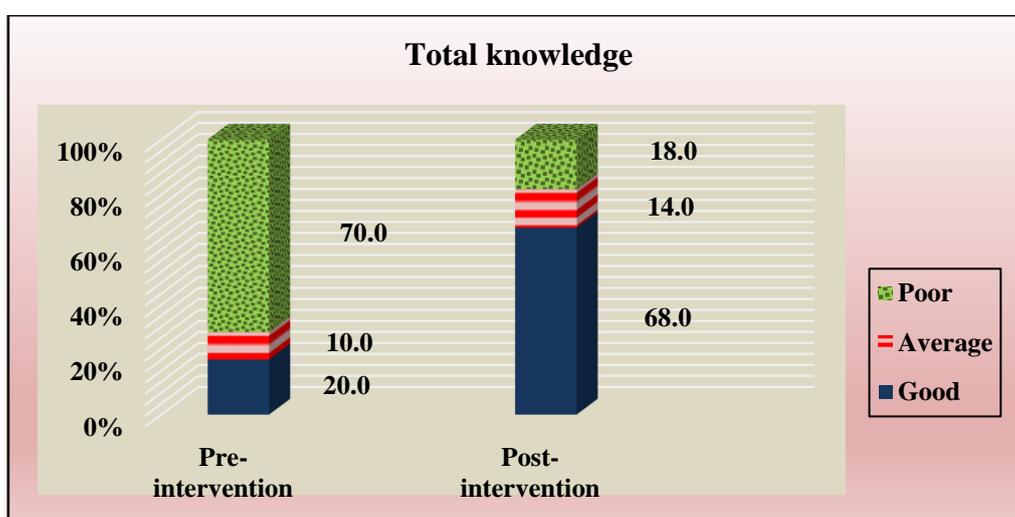
| Present Leg cramps history                          | No | %    |
|---|----|------|
| <b>Most common Sites of leg cramp:</b>              |    |      |
| Right leg   | 20 | 20.0 |
| Left leg  | 33 | 33.0 |
| Both legs   | 47 | 47.0 |
| <b>Most common time of occurrence of leg cramp:</b> |    |      |
| At day  | 10 | 10.0 |
| At night  | 31 | 31.0 |
| At sleep  | 59 | 59.0 |
| <b>Factors aggravate intensity of leg cramp*:</b>   |    |      |
| Walking   | 14 | 14.0 |
| Up stairs   | 33 | 33.0 |
| Standing for long times                             | 68 | 68.0 |
| Wearing high heel shoes                             | 21 | 21.0 |

\* Results not mutually exclusive

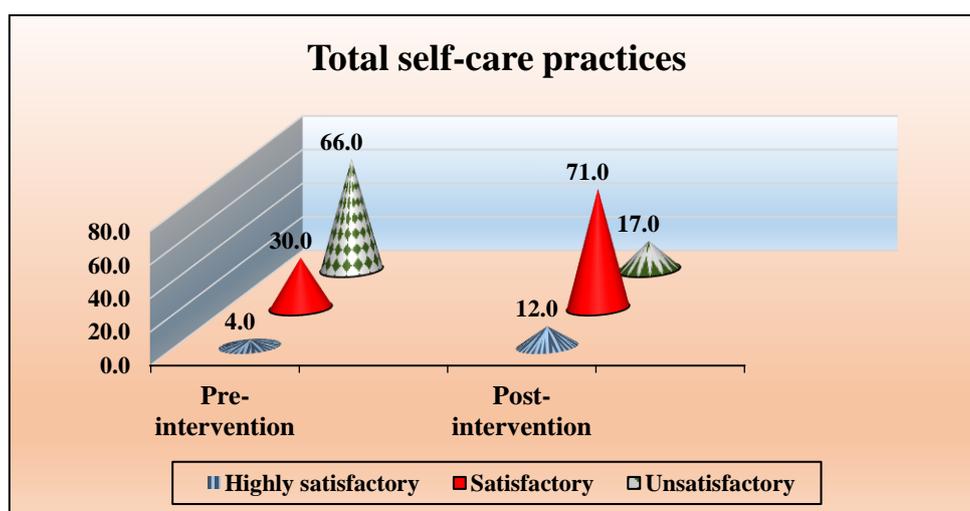
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**Table (3): Distribution of the studied sample according to their leg cramps pain characteristics (n=100).**

| Leg cramps pain characteristics     | No | %    |
|-------------------------------------|----|------|
| <b>Intensity of leg cramp pain:</b> |    |      |
| Mild                                | 12 | 12.0 |
| Moderate                            | 34 | 34.0 |
| Severe                              | 54 | 54.0 |
| <b>Duration of leg cramp pain</b>   |    |      |
| <5 minutes                          | 9  | 9.0  |
| 5-10 minutes                        | 11 | 11.0 |
| 10-15 minutes                       | 30 | 30.0 |
| >15 minutes                         | 50 | 50.0 |



**Figure (1): Percentage distribution of studied sample regarding their total knowledge score about leg cramps at pre and 4 weeks post intervention phases (n=100)**



**Figure (2): Percentage distribution of studied sample's total self-report about self-care practices regarding leg cramps at Pre-intervention, 4 weeks post-intervention phases (n=100).**

## **Discussion:**

During the period of pregnancy, women will undergo a lot of normal physical and hormonal changes. These changes cause the non-harmful minor discomforts during pregnancy such as: nausea, vomiting, back pain, varicosities and leg cramps. Leg cramp is serious minor discomfort. It is strong painful contraction or tightening that come on suddenly, and lasts from second to several minutes. About 30%–50% of pregnant women experience leg cramps twice a week. Leg cramps may cause severe pain and sleep disturbance, hinder performance of daily activities and may lengthen the duration of pregnancy and the type of childbirth (**Liu et al., 2021**).

Leg cramps may start at the second trimester and get worse as the pregnancy progresses. Leg cramps may be aggravated by the pressure the expanding uterus puts on the blood vessels that return blood from the legs to the heart and the nerves leading from the trunk to the legs. Also, it may be due to nutritional deficiencies (vitamins E and D) or electrolyte imbalances (eg. magnesium, calcium and sodium). While these cramps can occur during the day, it'll probably notice them most at night (**Araújo et al., 2020**).

Regarding to **general characteristics** of studied women, the present study illustrated that more than two-fifth of studied sample was in age group 20-30 years with a mean age of  $26.08 \pm 0.76$  years. As regards the residence, less than two-thirds of them lived in rural areas. Furthermore, less than three-quarters of them were housewives. Regarding the educational level, less than half of them had secondary education. This result was consistent with, (**Ramadan et al., 2019**) who studied "Lifestyle Intervention for Reducing Leg Cramps among Pregnant Women" showed that about half of studied women had

age ranged from (20-30) years of age. More than half of them had a secondary education.

Regarding the **present Leg cramps history and characteristics of leg cramps pain** the studied sample, the current study findings revealed that less than half of studied sample had leg cramps in both leg. As regards **the most common time of leg cramp occurrence** was more than half at sleep. According to **factors aggravate intensity of leg cramp**, the current study findings showed that the commonest risk factors that aggravates leg cramps in more than two thirds standing for long time. Additionally, more than half of them **leg cramp pain** was severe. Moreover, half of them suffered from **leg cramps for period** of times exceeds more than 15 minutes.

The result of the current study was in the same harmony with (**Ramadan et al., 2019**) who found that the most common sites of leg cramps in study group was both legs 46.2%. At sleep was the most common time of leg cramp occurrence in both groups (45.3%). According to factors aggravate intensity of leg cramp in study and control group standing for long time was the common factor in 66.0% and 52.8% respectively. Also the distribution of leg cramps pain characteristics of the studied participants, the intensity of leg cramp pain is severing among both control and studied groups (71.7% & 57.5% respectively) and the times of leg cramps exceeds more than 15 minutes in about 59.4% in the study group and 51.9% in the control one.

In relation to **total knowledge score**, the current study findings showed that the minority and more than two-thirds of studied sample had good knowledge regarding leg cramps at pre-intervention and 4 weeks post-intervention respectively. While, it was

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revealed that less than three quarter and the minority of them had poor knowledge regarding leg cramps at pre-intervention and 4 weeks post-intervention respectively.

The result of the current study was supported by (Anwar et al., 2022) who conducted "Traditional methods utilized to relieve minor discomfort during the third trimester of pregnancy" reported that, less than two third (65.3%) of the studied pregnant women had unsatisfactory level of knowledge about the traditional methods utilized for relieving minor discomfort during the third trimester of pregnancy.

Contradictory to the study this study, (Sangeetha et al., 2015) who conducted "A descriptive study to assess the level of knowledge on minor ailments in pregnancy among antenatal mothers in selected tertiary hospital, Kanchipuram, Tamilnadu" reported that (43%) had average knowledge on minor ailments during pregnancy, (40%) had good knowledge on minor ailments during pregnancy, (10 %) had poor knowledge on minor ailments during pregnancy. From researcher view of point this contradictory may be related to that the majority of studied pregnant women in this study had a better level of education lead to having adequate knowledge than of current study.

In relation to **total practices score**, the current study findings displays that, less than one-third and less than three-quarters of studied sample had satisfactory level of self-care practices regarding leg cramps at pre-intervention and 4 weeks post-intervention phases respectively. While, it was revealed that two-thirds and the minority of them had unsatisfactory level of self-care practices regarding leg cramps at pre-intervention and 4 weeks post-intervention phases respectively.

This outcome matched with result of (Ramadan et al., 2019) showed that more

than one third of the studied pregnant women increase calcium-rich foods to relieve leg cramp. Concerning exercise and physical activity self –reported practice of studied women revealed that study group follow healthy life style behavior as ante natal visits , avoid standing for long period of time and avoid wearing high heel shoes by acceptable manner compared to control group after intervention. So, these results confirm the importance of educational programs for pregnant women to alleviate their minor discomfort as leg cramps.

On the other side, (Sharma et al., 2020) reported that about 94% of women ate fruits and vegetables followed by 76% of women take plenty of water (8 glasses/day). Leg massage (63%), rest and elevating foot with pillow (58%) were practiced by women to relieve discomfort of leg cramps respectively. These differences in results between this study and present study findings may be related to that most of studied pregnant women were higher in level of education than those in present studies.

### **Conclusion**

The implementation of instructional guidelines was effective in improving pregnant women's knowledge and self-care practices, where there was a highly statistical significant difference between the results of post-test compared to pre-test about knowledge and self-care practices regarding leg cramps. The previously findings proved the study hypotheses and achieve aim of the study.

### **Recommendations:**

- Practice modification to prevent leg cramps should be recommended by Obstetricians and obstetric nurses to be first trial by pregnant women who have leg cramps.

- Booklets and brochures containing sufficient knowledge about leg cramps during pregnancy and its management should be printed and kept in antenatal clinics and maternity hospitals and given to all pregnant women.
- Awareness of pregnant women regarding importance of follow up ante natal visits to overcome minor discomforts during pregnancy such as leg cramps.

**Further studies:**

- Replication of the study on a large representative probability sample is highly recommended in different maternity hospitals to achieve more generalization of the results.
- A similar study can be conducted as a longitudinal study.
- Conduct a study to incorporate the views and responses of health care providers because the study only depended on the responses of pregnant women.

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## تأثير الإرشادات التعليمية على معلومات وممارسات الرعاية الذاتية بين السيدات الحوامل اللاتي تعانين من تقلصات الساق

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تعد تقلصات الساق أثناء الحمل مشكلة شائعة وهي تتميز بانقباضات مفاجئة ومكثفة ومؤلمة وإرادية لعضلات الساق. تعاني ما يصل إلى ٣٠٪ إلى ٥٠٪ من السيدات الحوامل من تقلصات الساق، خاصة في الثلث الثاني والثالث من الحمل. و تقريبا ثلثي هؤلاء السيدات تحدث لهم تقلصات الساق مرتين في الأسبوع وفي أي وقت، وخاصة في الليل. لذلك هدفت هذه الدراسة إلى تقييم تأثير الإرشادات التعليمية على معلومات وممارسات الرعاية الذاتية بين السيدات الحوامل اللاتي تعانين من تقلصات الساق. وأجريت هذه الدراسة في العيادة الخارجية لأمراض النساء و التوليد الخارجية بمستشفى جامعة بنها. وقد تم اخذ عينة غرضية مكونة ( ١٠٠ ) من السيدات الحوامل المصابات بتقلصات الساق اللواتي تم قبولهن في مكان الدراسة المذكور أعلاه لمدة ستة أشهر وفقا لمعايير الشمول وإستبعاد. حيث كشفت النتائج أن لدى الأقلية وأكثر من ثلثي العينة المدروسة معلومات جيدة فيما يتعلق بتقلصات الساق في مرحلة ما قبل التدخل وبعد ٤ أسابيع من التدخل على التوالي. أقل من ثلث وأقل من ثلاثة أرباع العينة المدروسة مستوى مرض من ممارسات الرعاية الذاتية فيما يتعلق بتقلصات الساق في مراحل ما قبل التدخل و ٤ أسابيع بعد التدخل على التوالي. لذلك كان تنفيذ الإرشادات التعليمية فعالا في تحسين معلومات السيدات الحوامل وممارسات الرعاية الذاتية، حيث كان هناك فرق كبير إحصائيا كبيرا بين نتائج ما بعد الاختبار مقارنة بالاختبار المسبق حول المعلومات وممارسات الرعاية الذاتية فيما يتعلق بتقلصات الساق لذلك تم دعم فرضية الدراسة وتم تحقيق الهدف من الدراسة. وأوصت الدراسة أطباء التوليد وممرضات التوليد بتعديل الممارسة لمنع تقلصات الساق لتكون أول تجربة من قبل السيدات الحوامل اللاتي تعانين من تقلصات الساق. يجب طباعة الكتيبات والمنشورات التي تحتوي على المعلومات الكافية عن تقلصات الساق أثناء الحمل وتطبيقها والاحتفاظ بها في عيادات متابعة الحمل ومستشفيات الولادة وإعطائها لجميع السيدات الحوامل.